

A Systematic Study of the Ichneumonidae (Hymenoptera) from Korea VIII. The Tribe Cteniscini (Tryphoninae)*

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한국산 맵시벌 과의 분류학적 연구 8.
참알락뭉툭맵시벌 족 (뭉툭맵시벌 아과)

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적 요

한국산 참알락뭉툭맵시벌 족을 재고찰한 결과 3종의 기존종이 확인 되었으며, 한국 미기록종인 *Cteniscus quadriceps* Uchida, *Smicroplectrus erosus* Holmgren과 *Smicroplectrus quinquecinctus* Gravenhorst등 3종이 추가되어 한국산 참알락뭉툭맵시벌 족은 총 6종이 보고된다.

Key words: Ichneumonidae, Cteniscini, systematics, Korea

INTRODUCTION

Tribe Cteniscini are moderate sized genera belonging to the subfamily Tryphoninae. This tribe has been known by eleven genera from Holarctic region (Townes *et al.*, 1961, 1965). All are parasites of sawflies, laying eggs attached to the host larva by the variously modified egg stalk. The egg hatches when the larva has made its cocoon. The genus *Exenterus* is parasitic on Diprionidae, the other genera on Thenthredinidae.

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In Korea, Clausen (1932), Uchida (1930) and Cushman (1940) described *E. clauseni*, *E. adspersus* and *E. abruptorius* for the first time from Korea. Up to the present only three species has been recognized from Korea.

In this paper, two additional genera and three species, *Smicroplectrus erosus*, *S. quinquecinctus* and *C. quadriceps* are newly recorded from Korea. The keys to the Korean species and genera of Cteniscini are also given. The specimens are deposited in the collection of the Animal Taxonomy Laboratory, College of Science, Yeungnam University, Korea.

MATERIALS AND METHODS

All the examined materials were based on the specimens which collected by the authors and other scientists science the period of 1947-1988 in Korea.

Preserved materials were identified under the stereomicroscope. Identified specimens were washed in pure iso-propyl alcohol four or five times and dried for two days in room temperature. Finally specimens sputtered with gold (15nm) and examined by the scanning electron microscope (ISI, SS-130, Japan).

In the present work, morphological terminology and some indecies follow those used by Townes (1969) and Gauld (1976).

RESULT

Subfamily Tryphoninae 뚫개벌 아과

Tribe Cteniscini 참알락뚫개벌 족 (신칭)

Key to genera and species of Korean tribe Cteniscini

1. Subtergular ridge specialized, either with a longitudinal slot in its posterior 0.4 or forming a lamella that projects toward lower edge of tergular (Genus *Smicroplectrus*) 2
- Subtergular ridge not specialized, neither with a slot in its hind part nor in the form of a lamella. 3
2. Median longitudinal carina of first tergite reaching less than 0.9 the length of first tergite. Nervulus opposite. Discocubitus moderately arched. Abdomen slender. Gena with granular sculpturing weakly developed. *Smicroplectrus erosus*
- Median longitudinal carina of first tergite reaching less than 0.7 the length of first tergite. Nervulus distard. Discocubitus sharply arched. Abdomen stout. Gena with granular sculpturing strongly developed. *Smicroplectrus quinquecinctus*
3. First tergite without laterobasal corners gradully tapered from apex to base..... (Genus *Eridolius*) *Eridolius clauseni*
- First tergite with laterobasal corners, rather gradually tapered from apex to laterobasal corners. then abruptly to the base. 4
4. Notalus distinct. Punctures on abdominal tergites fine to medium sized. Areola longer than wide (Genus *Cteniscus*) *Cteniscus quadriceps*

- Notalus absent. Punctures on abdominal tergites coarse and strong. Areola, if defined, wider than long. (Genus *Exenterus*) 5
5. Abdomen black with yellow marks. Fore coxa and tibia yellow. Clypeus black; moderately punctate. Wing clear. Second recurrent vein usually straight. Discocubitus sharply arched. *Exenterus adspersus*
- Abdomen black with yellow stripes. Fore coxa and tibia brown with reddish. Clypeus yellow; punctate. Second recurrent vein sharply arched. Discocubitus moderately arched. *Exenterus abruptorius*

Genus *Smicroplectrus* Thomson, 1883 밀노란뿔목뱀시벌 속 (신칭)

— *Microplectron* Foerster, 1868 (p. 195). Name preoccupied by Streubel, 1842 and by pahlbon, 1857. Designated by Viereck, 1914.

Smicroplectrus Thomson, 1883 (p. 888). Designated by Viereck, 1912.

Anderis Davis, 1897 (p. 348). Designated by Viereck, 1914.

1. *Smicroplectrus erosus* (Holmgren) 노란뿔목뱀시벌 (신칭) (Figs. 1,5,9,13)

Exenterus erosus Holmgren, 1858 (p. 227).

Smicroplectrus quinquecinctus Kerrich, 1952, (p. 395). Syn.n.

Material examined: Mujukuch'ondong Chollabukdo (21 V 1984, 15♂♂)

Measurements: PI: 0.6-0.8, TI: 3-3.5, CI: 1.4-1.75, BI: 1.17-2.0, DBI: 0.72-0.88, MI: 1.54-1.88, ICI: 0.54-0.63, NI: 2.67, RI: 1.83-3.5, IOD/OOD: 0.29-0.33, IOD/POD: 0.2-0.28, IOD/MOD: 0.57-0.71, POD/MOD: 2.57-2.86.

Description Male: Compound eye $0.57 \times$ as long as width; black. Ocelli small; ocellar triangle black. Head $1.38 - 1.49 \times$ as long as width. Temple weakly convex; black; punctate. Occipital carina complete. Frons $1.95 - 2.86 \times$ as long as width; moderately punctate. Face $2.00 - 2.76 \times$ as long as width; broadly convex in middle; yellow; moderately punctate. Clypeus rather large; its apex arcuate. Mandible yellow. Maxillary palp with 5 segments. Labial palp with 4 segments. Antenna with 32 segments; yellow; $0.90 \times$ as long as fore wing. First segment of antenna $1.50 - 1.83 \times$ as long as second; second segment $0.85 - 0.92 \times$ as long as fifth.

Mesoscutum $0.85 - 0.92 \times$ as long as width; black. Notalus rather strong and sharp. Scutellum small; black. Lateral carina of scutellum reaching less than 0.5 the length of scutellum. Pronotum black. Epomia present. Mesopleuron black with small yellow marks. Prepectal carina completed. Propodeal spiracle about $1.0 \times$ as long as width. Juctacoxal carina strong. Submetapleural carina weak.

Fore and mid legs yellow. Fore femur $0.24 - 0.29 \times$ as long as width. The length ratios of fore tarsal segments 4:2:1.5:1:2. Mid femur $0.18 - 0.24 \times$ as long as width. The length ratios of mid tarsal segments 5.5:2.5:2:1:2. Hind femur $0.23 - 0.25 \times$ as long as width. The length ratios of hind tarsal segments 4.3:3.5:1.6:1:1.1; brown with blackish. Hind coxa and tibia brown with reddish. Hind claws brown with blackish.

First abdominal tergite black; second to fifth abdominal tergite black with yellow stripe. Fore wing 8mm. Areolet present. Basal hamulus 0-2; distal hamuli 9.

Remark: This species is recorded for the first time from Korea.

Distribution: Korea, England.

2. *Smicroplectrus quinquecinctus* (Gravenhorst) 밀노란뿔목뱀시벌 (신칭) (Figs. 2,6,10,14)

Ichneumon quinquecinctus Gravenhorst, 1820 (p. 374).

Smicroplectrus quinquecinctus, Pfankuch, 1906 (p. 94).

Smicroplectrus trianguligena Kerrich, 1952 (p. 400). Syn.n.

Material examined: Söraksan, Kwangwondo (3 VI 1979, 1♂), P'och'ön, Kyönggido (23 V 1976, 1♂), Unmunsa, Kyöngsanbukdo (14 V 1988, 1♂).

Measurment: PI: 0.63-0.8, TI: 5.00, CI: 1.29-1.4, BI: 1.17-2.17, DBI: 0.8-0.91, MI: 1.85-2.21, ICI: 0.28-0.44, NI: 1.5-2.67, RI: 1.63-2, IOD/OOD: 0.31-0.36, IOD/POD: 0.24-0.29, IOD/MOD: 0.67-0.83, POD/MOD: 2.83.

Description Male: Compound eye $0.62 \times$ as long as width; black. Ocelli small; ocellar triangle black. Head $1.36 - 1.51 \times$ as long as width. Temple weakly convex; black; punctate. Occipital carina complete. Frons $1.95-2.16 \times$ as long as width; punctate. Face $2.37 - 2.56 \times$ as long as width; broadly convex in middle; yellow; punctate. Clypeus large; its apex arcuate. Mandible yellow. Maxillary palp with 5 segments. Labial palp with 4 segments. Antenna with 32 segments; brown; $0.90 \times$ as long as fore wing. First segment of antenna $1.27 - 1.50 \times$ as long as second; second segment $0.67 - 0.83 \times$ as long as fifth.

Mesoscutum $0.88 \times$ as long as width; black. Notulus rather strong and sharp. Pronotum black and yellow marks. Epomia present. Mesopleuron black. Propodeal spiracle about $1.0 \times$ as long as width. Juctacoxal carina and submetapleural carina strong.

Fore and mid legs yellow. Fore femur $0.23 \times$ as long as width. The length ratios of fore tarsal segments 6:2.7:2:1:2. Mid femur $0.19 \times$ as long as width. The length ratios of mid tarsal segments 5.5:2.5:1.5:1:2. Hind femur $0.19 \times$ as long as width. The length ratios of hind tarsal segments 5.3:2:1.6:1:1.3; black. Hind coxa, tibia and claws brown with blackish.

First abdominal tergite black; second to fifth abdominal tergite black with and yellow stripe. Fore wing 10mm. Areolet present. Basal hamulus 0-2; distal hamuli 11.

Remark: This species is recorded for the first time from Korea.

Distribution: Korea, England.

Genus *Eridolius* (Foerster), 1868 수원뿔목뱀시벌 속 (신칭)

Anisoctenion Foerster, 1868 (p. 194).

Eridolius Foerster, 1868 (p. 195).

Eridolius Townes, Momoi and Townes, 1965 (p. 115).

3. *Eridolius clauseni* (Kerrich) 수원뿔목뱀시벌 (신칭)

(Figs. 18)

Anisoctenion clauseni Kerrich, 1962 (p. 45).

Eridolius clauseni Townes, Momoi and Townes, 1965 (p. 115). Comb. n.

Material Examined: Hannover (Germany; 3 X 1948, 1♂).

Measurements: PI: 0.54, TI: 2, CI: 1.4, BI: 1.2, DBI: 0.56, MI: 1.95, ICI: 0.31, NI: 4, RI: 2.5, IOD/OOD: 0.25, IOD/POD: 0.2, IOD/MOD: 0.5, POD/MOD: 2.5.

Description Male: Compound eye $0.60 \times$ as long as width; black. Head $1.30 \times$ as long as width. Frons $1.62 \times$ as long as width; moderately punctate. Face $1.30 \times$ as long as width; broadly convex in middle; black; moderately punctate. Mesoscutum $0.69 \times$ as long as width; black. Fore and mid legs

brown with blackish. Fore femur $0.29 \times$ as long as width. The length ratios of hind tarsal segments 4:2:1.6:1:1.3; brown with blackish. Abdomen black. Basal hamulus 1; distal hamuli 8.

Remark: This species was examined by voucher specimens from Dr. R. Hinz.

Distribution: Korea, Germany.

Genus *Cteniscus* Haliday, 1832 흰띠수염뚝딱벌레속 (신칭)

Cteniscus Haliday, 1832 (p.399).

Eudiaborus Kerrich, 1952 (p.415).

4. *Cteniscus quadriceps* (Uchida) 흰띠수염뚝딱벌레속 (신칭) (Figs. 4,8,12,17)

Microplectron quadriceps Uchida, 1931 (p.147).

Smicroplectrus quadriceps, Kerrich, 1952 (p.414).

Cteniscus quadriceps Townes, Momoi and Townes, 1965 (p.113).

Material examined: Mujukuch'ondong, Chollabukdo (21 V 1983, 2♂).

Measurements: PI: 2, TI: 3.7-4, CI: 1.8-2.5, BI: 1.5, DBI: 0.75-0.78, MI: 1.91-2.04, ICI: 0.56, NI: 0.5-0.7, RI: 2.37-2.43, IOD/OD: 0.31, IOD/POD: 0.21, IOD/MOD: 0.67, POD/MOD: 3.17-3.33.

Description Female: Compound eye $0.64 - 0.68 \times$ as long as width; black. Ocelli small; ocellar triangle black. Head $1.44 - 1.49 \times$ as long as width. Temple weakly convex; black; moderately punctate. Occipital carina complete. Frons $1.82 - 2.39 \times$ as long as width; punctate. Face $1.86 - 2.05 \times$ as long as width; broadly convex in middle; yellow. Clypeus rather large; its apex arcuate. Mandible yellow. Maxillary palp with 5 segments. Labial palp with 4 segments. Antenna with 32 segments; brown with white bands; $0.9 \times$ as long as fore wing. First segment of antenna $1.57 \times$ as long as second; second segment $0.79 \times$ as long as fifth.

Mesoscutum $1.06 \times$ as long as width; black. Notalus weak. Pronotum yellow. Epomia present. Mesopleuron black with small yellow marks. Prepectal carina completed. Propodeal spiracle about $1.00 \times$ as long as width. Median longitudinal carina of first tergite reaching less than 0.50 the length of first tergite. Juctacoxal carina and submetapleural carina strong.

Fore and mid legs yellow. Fore femur $0.25 - 0.28 \times$ as long as width. The length ratios of fore tarsal segments 7:2.5:2:1:2.5. Mid femur $0.14 - 0.21 \times$ as long as width. The length ratios of mid tarsal segments 7.3:3.3:2:1:3. Hind femur $0.21 - 0.25 \times$ as long as width. The length ratios of hind tarsal segments 4.8:2.8:1.6:1:1.4; yellow. Hind coxa and yellow. Hind claws brown with blackish.

First abdominal tergite black; second to fifth abdominal tergite black with yellow stripe. Ovipositer about $0.5 \times$ as long as the apical depth of abdomen. Fore wing 9-10 mm. Areolet present. Second recurrent vein weakly arched. Discocubital vein sharply arched. Nervulus distard. Basal hamulus 2; distal hamuli 8-11.

Remark: This species is recorded for the first time from Korea.

Distribution: Korea, Japan.

Genus *Exenterus* Hartig, 1837 참알락뚝딱벌레속

Exenterus Hartig, 1837 (p.156).

Picoroscopus Foerster, 1868 (p.195).

Actenonyx Foerster, 1868 (p.195).

5. *Exenterus adpersus* Hartig 하르티히뿔족맵시벌

(Fig. 15)

Exenterus adpersus Hartig, 1838 (p.271).*Exenterus oleaceus* Uchida, 1931 (p.146). Syn.n.*Exenterus adpersus*: Cushman, 1940 (p.6).**Material Examined:** Braunsd wald (Germany; 8 VII 1971, 1♂).**Measurements:** PI: 1, TI: 2.5, CI: 2.33, BI: 1.14, DBI: 0.86, MI: 2, ICI: 0.4, NI: 1.6, RI: 2.83, IOD/OD: 0.44, IOD/POD: 0.25, IOD/MOD: 0.5, POD/MOD: 2.0.**Description Male:** Compound eye $0.50 \times$ as long as width; black. Head $1.48 \times$ as long as width. Frons $1.95 \times$ as long as width; punctate. Face $1.83 \times$ as long as width; broadly convex in middle; yellow with black marks. Mesoscutum $0.69 \times$ as long as width; black with three yellow marks. Fore femur $0.23 \times$ as long as width. The length ratios of hind tarsal segments 3.6:2:1.4:1:1.2; yellow. Basal hamulus 3; distal hamuli 7.**Remark:** This species was examined by voucher specimens from Dr. H. Schnee.**Distribution:** Korea, Japan, China, Germany.**6. *Exenterus abruptorius* Thunberg** 참알락뿔족맵시벌

(Figs. 3,7,11,16)

Exenterus abruptorius Thunberg, 1822 (p.279).*Exenterus coreensis* Uchida, 1930 (p. 227). Syn.n.**Material examined:** Ch'ŏnggyesan, Kyŏnggido (16 IX 1973, 1♂), Ch'nsŏng, Kwangwondo (3 X 1947, 1♂), Uidong, Seoul (1 VI 1961, 1♂).**Measurements:** PI: 0.8-1, TI: 2.5-4, CI: 0.71-3.33, BI: 1.33-2.3, DBI: 0.70-0.97, MI: 1.43-2.1, ICI: 0.43-0.57, NI: 1.85-2.33, RI: 3.83-5.33, IOD/OD: 0.24-0.36, IOD/POD: 0.14-0.29, IOD/MOD: 0.4-0.71, POD/MOD: 1.44-2.1.**Description Male:** Compound eye $0.49 - 0.53 \times$ as long as width; black. Head $1.3 - 1.44 \times$ as long as width. Frons $2.00 - 2.43 \times$ as long as width; punctate. Face $1.77 - 2.41 \times$ as long as width; broadly convex in middle; yellow; punctate. Mesoscutum $0.65 - 0.75 \times$ as long as width; black. Fore femur $0.20 - 0.24 \times$ as long as width. The length ratios of hind tarsal segments 4.5:2:1.5:1:1.5; brown with blackish. Basal hamulus 1-4; distal hamuli 7-11.**Distribution:** Korea, Japan, Sweden.**ABSTRACT**

In the present work, five species were recognized. Two additional genera and three species were newly recorded from Korea. A key to the Korean species and genera of Cteniscini was also given. The newly recorded species of tribe Cteniscini were *Smicroplectrus erosus* Holmgren, *Smicroplectrus quinquecinctus* Gravenhorst and *Cteniscus quadriceps* Uchida.

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EXPLANATIONS OF FIGURES

Shape of clypeus (Figs. 1-4.)

- Fig. 1. *S. erosus* (X60), (scale size 100 μ m).
- Fig. 2. *S. quinquecinctus* (X60), (scale size 100 μ m).
- Fig. 3. *E. abruptorius* (X60), (scale size 100 μ m).
- Fig. 4. *C. quadriceps* (X50), (scale size 100 μ m).

Dorsal surface structure of petiolar (Figs. 5-8)

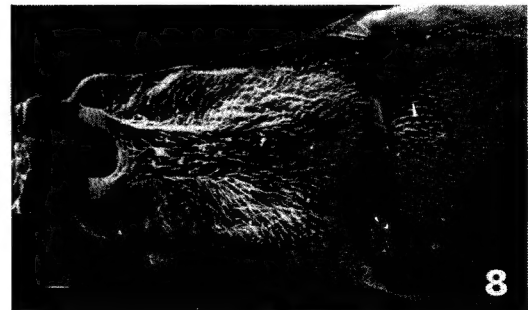
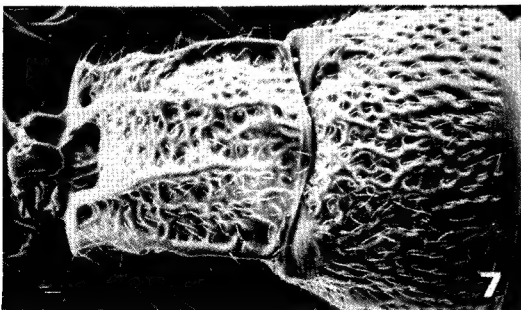
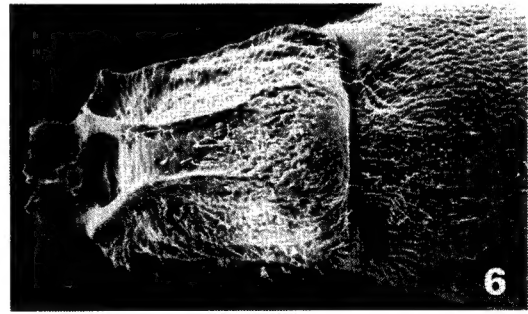
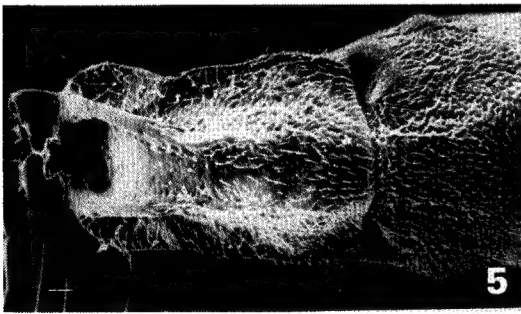
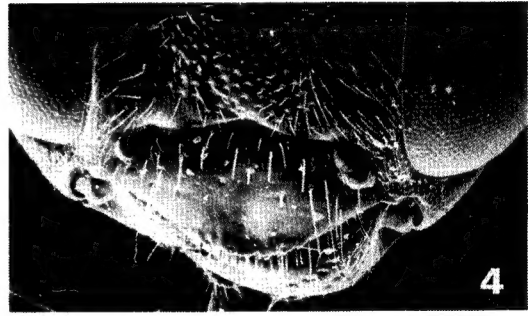
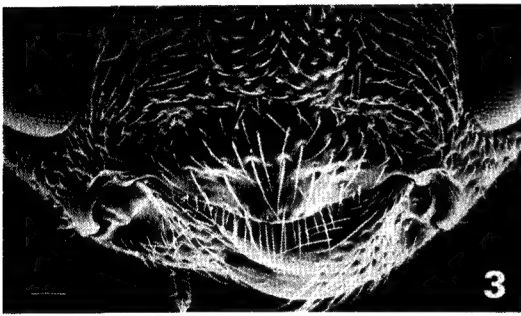
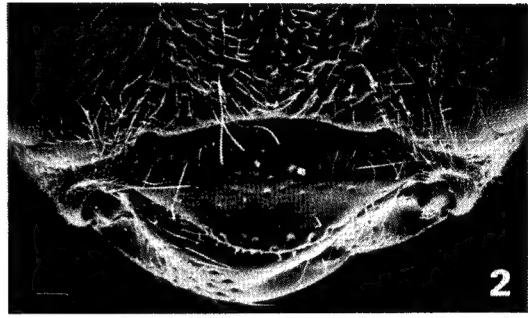
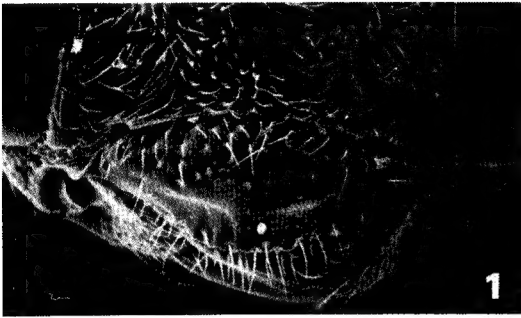
- Fig. 5. *S. erosus* (X40), (scale size 100 μ m).
- Fig. 6. *S. quinquecinctus* (X60), (scale size 100 μ m).
- Fig. 7. *E. abruptorius* (X40), (scale size 100 μ m).
- Fig. 8. *C. quadriceps* (X40), (scale size 100 μ m).

Lateral view of propodeum (Figs. 9-12.)

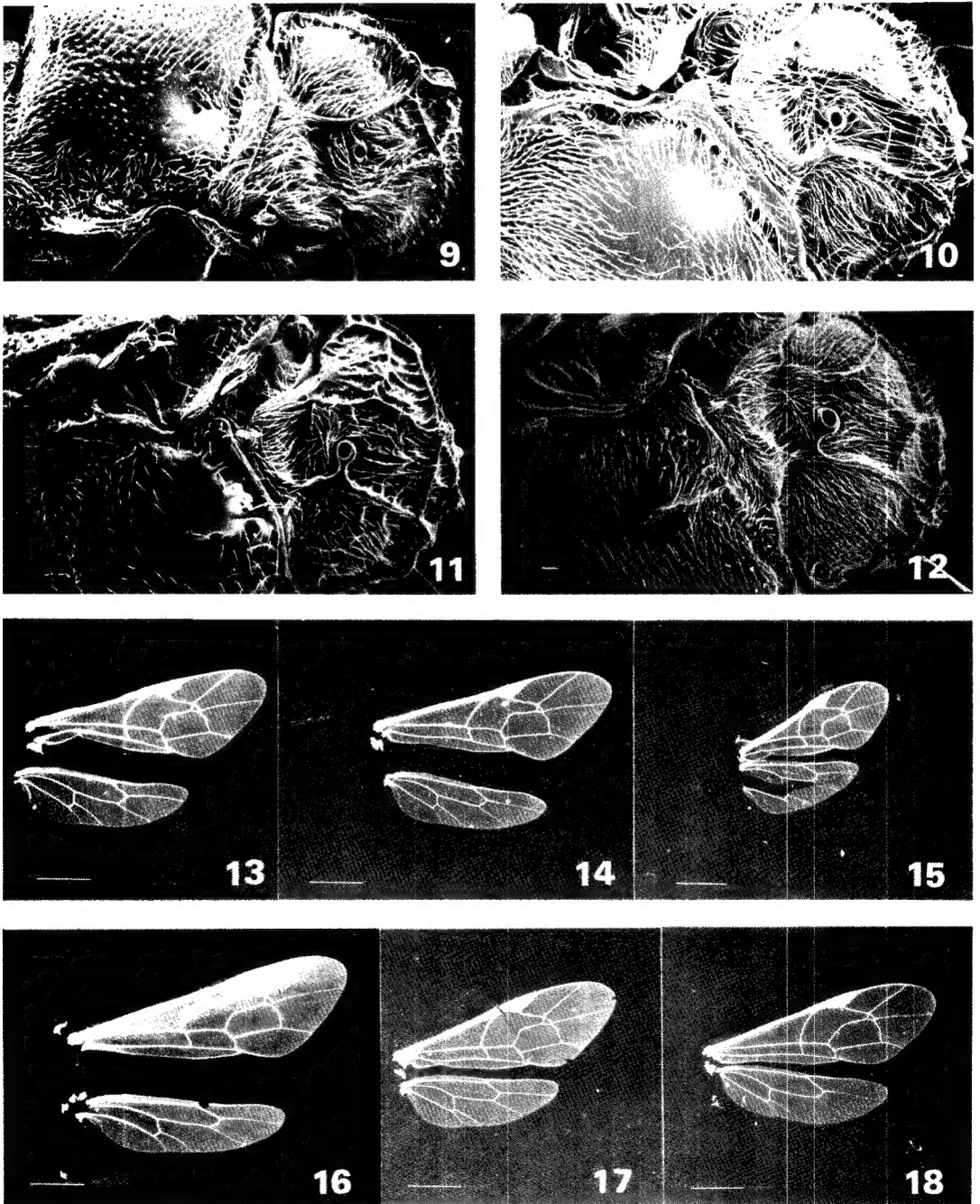
- Fig. 9. *S. erosus* (X35), (scale size 100 μ m).
- Fig. 10. *S. quinquecinctus* (X40), (scale size 100 μ m).
- Fig. 11. *E. abruptorius* (X41), (scale size 100 μ m).
- Fig. 12. *C. quadriceps* (X40), (scale size 100 μ m).

Shape of wing (Figs. 13-18.)

- Fig. 13. *S. erosus*, (scale size 2mm).
- Fig. 14. *S. quinquecinctus*, (scale size 2mm).
- Fig. 15. *E. adspersus*, (scale size 2mm).
- Fig. 16. *E. abruptorius*, (scale size 2mm).
- Fig. 17. *C. quadriceps*, (scale size 2mm).
- Fig. 18. *E. clauseni*, (scale size 2mm).



Scale —



Scale Figs. 9-12 —

Figs.13-18 —